

Comparison of Intralesional Triamcinolone Acetonide Injection versus Surgical Intervention for Management of Primary Chalazion

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ABSTRACT

Purpose: To compare the effectiveness of intralesional steroid injection versus Incision and curettage in management of primary chalazion.

Study Design: Quasi experimental study.

Place and Duration of Study: Department of Ophthalmology, Pakistan Institute of Medical Sciences, Islamabad, from August 2020 to January 2021.

Methods: Eighty patients were divided into two groups of 40 each through consecutive sampling. Patients with primary chalazion of the size >5mm, age group 18 to 50 years and either gender were included. Patients with recurrent, multiple and infected chalazia were excluded. All patients underwent complete ocular examination. Group A underwent Incision and curettage while in group B a 28 gauge needle with a 1 ml syringe was used to inject 0.25 ml of 40 mg/ml Triamcinolone Acetonide into the chalazion via transcutaneous route. Success was defined as 80% reduction in the size of chalazion after one month. The chi-square test was used for equivalence of treatment efficacy between the groups.

Results: Age range in this study was 18 to 50 years. Mean age was 34.10 ± 5.87 years in Group A and 35.975 ± 7.60 years in Group B. The procedure was successful in 31 (77.5%) individuals in group A and 33 (82.5%) individuals in group B (P = 0.576), which was statistically insignificant. Stratification with respect to gender and age also showed no statistically significant difference between the two groups (p > 0.05).

Conclusion: Intralesional steroid injection and Incision/curettage are equally effective in management of primary chalazion.

Key Words: Chalazion, Intralesional steroid injection, Incision and curettage, Triamcinolone Acetonide.

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INTRODUCTION

Chalazion is a lympho-granulomatous inflammation of eyelids. Painless lump or swelling on upper or lower eyelid is the most common symptom.¹ This is the most common benign eyelid lesion. The condition can be

unilateral or bilateral, single or multiple.² Majority of the lesions occur in the upper lid wing to increase number of meibomian glands. Larger lesions have the propensity to create mechanical ptosis along with impaired vision caused by astigmatism. Infrequently, conjunctivitis and cellulitis can develop.³ Histological examination of Chalazion shows numerous inflammatory cells like lymphocytes, histiocytes, plasma cells and polymorpho-nuclear eosinophils. Chalazion can have correlation with other dermatologic conditions like acne, seborrheic dermatitis or chronic blepharitis.⁴ Differential

diagnosis of mimicking neoplasms includes Basal cell carcinoma, Squamous cell carcinoma, sebaceous gland carcinoma or merkel cell carcinoma. Treatment modalities may include a medical or surgical intervention. Antibiotics are indicated only where there is an infective element. Interventions include Intralesional steroid injection (ILSI) of Triamcinolone Acetonide and Incision and curettage (I&C).⁵ Injection of 0.2 ml of steroid is given on the palpebral side by means of 28 gauge, 1cc syringe.⁵

Literature reviews show that ILSI is effective management for young patients with Chalazion of less than 5mm, where resolution rate is 71%, as compared to Chalazion larger than 5mm, where resolution rate was 50%.⁶ In individuals with large, numerous, or recurring chalazia, combination treatment can be considered. Another study showed that 76% of patients achieved resolution after ILSI, while 84% recovered after incision and curettage.⁷ Ocal studies are also available.⁸ However, we present the results of our center.

METHODS

It was a Quasi experimental study, done at department of Ophthalmology, of Institute of Medical Sciences, Islamabad, from August 2020 to January 2021. Eighty patients were divided into two groups of 40 each through consecutive sampling. Sample size was calculated using WHO calculator with Level of significance = 5%, Power of Test = 80% and anticipated population = 50%.⁹

In group A, 40 individuals were treated with incision and curettage and in group B, 40 patients were treated through intralesional injection of Triamcinolone Acetonide 0.25 ml (40 mg/ml). All patients between 18 to 50 years of age with primary chalazion of the size > 5mm and either gender were included. Patients with recurrent, multiple and infected chalazion or hypersensitivity to Triamcinolone and/or local anaesthetics like Lignocaine were excluded.

Written informed consent was taken from all the patients prior to treatment. Study was approved from institutional review board. The data was collected in a pre-designed proforma. All the patient underwent ophthalmic examination which involved external inspection of eyes, visual acuity through standard Snellens chart, slit lamp examination, chalazion size measured with Castroviejo calliper, location, duration and extent. Prior to the surgery, the affected eye was

given topical anaesthesia with Proparacaine 0.5 percent eye drops. The chalazion site was cleaned with 10% Povidine iodine. A 28 gauge needle with 1ml syringe was used to inject 0.25 ml of 40 mg/ml Triamcinolone Acetonide (TA) intralesionally via the transcutaneous route. After the injection, no topical antibiotic or bandage was used. Efficacy was defined as at least 80% reduction in the size of chalazion after one month (two followups, at 2 weeks, and one month). Followups were conducted by contacting patients on their phone numbers and also advised on the day of intervention. SPSS version 23 was used to analyse data. To assess qualitative and quantitative factors, descriptive statistical analysis was used. Age was described as mean and standard deviation. Gender was presented in the form of frequency and percentage. The chi-square test was used to determine the statistically significant difference between the two groups.

RESULTS

Age range in this study was 18 to 50 years. Mean age was 34.10 ± 5.87 years in Group A and 35.975 ± 7.60 years in Group B. Percentages of males and females in both groups are shown in Table 1. The procedure was successful in 31 (77.5%) individual in group A and 33 (82.5%) individuals in group B ($P = 0.576$), which was statistically insignificant. Stratification with respect to gender and age is depicted in Table 2 and 3.

Table 1: Mean \pm SD of patients according to age and gender.

Demographic Feature	Group A n = 40 Mean \pm SD	Group B n = 40 Mean \pm SD
Age (Years)	34.100 \pm 5.87	35.975 \pm 7.60
Male	17 (42.5%)	25 (62.5%)
Female	23 (57.5%)	15 (37.5%)
Total	40 (100%)	40 (100%)

Table 2: Stratification of treatment efficacy with respect to age in both groups.

Age (18 – 30 Years)	Efficacy		P value
	Yes	No	
Group A	8 (66.7%)	4 (33.3%)	0.035
Group B	11 (100%)	0 (0%)	
Age (31 – 50 Years)	Efficacy		P value
	Yes	No	
Group A	23 (82.1%)	5 (17.9%)	0.561
Group B	22 (75.9%)	7 (24.1%)	

Table 3: Stratification of efficacy with respect to gender in both groups.

Group	Success of treatment			
	Males	P value	Female	P value
A	14 (82.4%)	0.607	17 (73.9%)	0.968
B	22 (88%)		11 (73.3%)	

DISCUSSION

In this particular study, both intralesional TA injection and I&C were successful therapies with no statistically significant difference between the results. Literature review shows that ILSI had 50 – 95 percent success rate.¹⁰ It has also been reported that intralesional TA injection was as active as I&C in treatment of primary chalazia.¹¹ According to Goawalla and Lee, a single TA injection was nearly as effective as I&C in treating primary chalazia while causing less pain to the patient.¹² It has also been reported that results depend on the duration of the lesion and one to three steroid injections resulted in a higher rate of resolution.¹³ According to Lee and Yau, although I&C had good results but ILSI can be a substitute to surgical option especially for the lesions close to canaliculi.¹⁴ According to Wong MY et al., ILSI was as effective as I&C in tiny, numerous, and marginal chalazia, although big lesions responded better to I&C.¹⁵

Relation of lesion histology with treatment response is also described in literature.¹⁶ It has been reported that older individuals, bigger lesions, lesions of longer duration and lesions with suppurating granulomas responded better to I&C. However, mixed-cell granulomas responded equally to both therapy strategies. In contrast to that, we found no link of treatment response with size and duration of chalazia.

Recurrence of chalazion is reported to be 4.5-17 percent following intralesional injection of 5 mg/ml triamcinolone and 4% following I&C.^{17,18}

Complication of ILSI include skin depigmentation.¹⁹ It was reported even with lower dosage of TA (5 mg/ml). Biuk D et al, tested different doses of TA injection and found no significant difference in treatment outcomes.¹⁷ We did not encounter any increase in IOP or skin depigmentation following TA injection. Goawalla also used 0.2 ml at the concentration of 10 mg/ml and reported no skin depigmentation or deposits.¹² This might also be related with the absorption patterns of different races and skin color. Some researchers have hypothesized

that sometimes intralesional injection of TA might leak out of the lesion to cause depigmentation of skin.²⁰

Limitation of our study was small sample, single center study and measurement of size of the lesion using a Castroviejo calliper. Although we did it carefully, digital photography might have proved superior for size calculation. Our time of follow-up was also limited.

CONCLUSION

Both intralesional steroid injection and I&C are effective options for treatment of primary chalazion. In contrast to TA, the benefits of I&C include less chance of recurrence and quick recovery.

Ethical Approval

The study was approved by the Institutional review board/ Ethical review board (No.F.1-1/2015/ERB/SZABMU/684).

Conflict of Interest: Authors declared no conflict of interest.

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